

Patent Abstracts of Japan

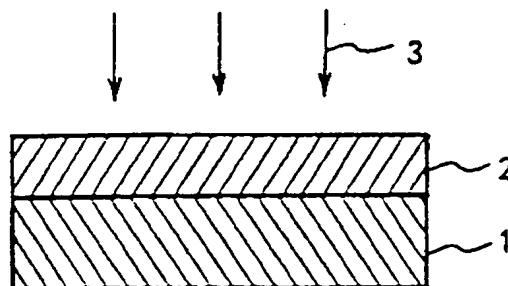
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PATENTEE : NEC CORP
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TITLE : MANUFACTURE OF
SEMICONDUCTOR THIN FILM



ABSTRACT : PURPOSE: To realize local heating and fusing of only the surface of a semiconductor layer while keeping a substrate at a low temperature and obtain polycrystal thin film having high mobility by forming an amorphous semiconductor thin film on a substrate and irradiating such a film with pulsed ultraviolet rays having a pulse width of 25 ns or less.
CONSTITUTION: An n-type amorphous silicon film doping phosphorus of 1 % is formed on a quartz substrate by the plasma CVD method. The amorphous silicon film is polycrystallized by irradiating the film with the ultraviolet ray laser beam with pulse width of 1-25 ns. As for the pulsed ultraviolet rays with wavelength of 400 nm or less, the excimer laser which assures uniform beam in a large area is preferable. Thereby, the annealing which assures comparatively high output pulse beam in the ultraviolet ray region and provides high throughput for a large area can be realized. Good annealing effect can also be obtained with irradiation intensity of 140 mJ/cm² or less by setting the pulse width to be 25 ns or less and thereby a polycrystal thin film can be obtained without damage on the substrate.